

IN THE CLAIMS

Cancel claims 4 and 5 without prejudice and add new claims 15 - 22 as set forth below.
Amend the claims as indicated by the markings.

1. (Currently Amended) A component operating with bulk acoustic waves, said component comprising :

a carrier substrate;

a lower electrode that faces said the carrier substrate[[,]] ;

an upper electrode; and

a piezoelectric layer arranged between said lower electrode and said upper electrode, said piezoelectric layer comprising a multi-layer assembly the two electrodes; and
an acoustic mirror being arranged between said the carrier substrate and said the lower electrode, said acoustic mirror comprising at least one layer with a high acoustic impedance and at least one layer with of a low acoustic impedance being arranged in a stack, said at least one layer of low acoustic impedance including an with the uppermost mirror layer of said the stack being the layer of low acoustic impedance, said at least one layer with high acoustic impedance being formed as a structured layer, said the uppermost mirror layer exhibiting a varying thickness, with an upper boundary surface of said the uppermost mirror layer being planar to said the lower electrode, and said the uppermost layer enclosing a structure structures of said the structured layer and forming a seal with a layer of said at least one surface covered by the structure with one of a mirror layer with a low acoustic impedance or with said arranged below the structured layer and the carrier substrate outside of a area covered by said structure.

2. (Currently Amended) A component according to claim 1, wherein said at least one layer the acoustic mirror has a plurality of layers with a high acoustic impedance includes a plurality of layers which are structured.

3. (Currently Amended) A component according to claim 2, wherein said at least one layer the mirror layers with high acoustic impedance is are formed of a material selected from

a group consisting of tungsten and molybdenum, and said at least one layer the mirror layers with the low impedance is are formed of silicon oxide.

Claims 4. and 5. (Cancelled)

6. (Currently Amended) A component ~~according to claim 5, which includes operating with bulk acoustic waves, said component comprising :~~
~~a carrier substrate;~~
~~a lower electrode that faces said carrier substrate;~~
~~an upper electrode;~~
~~a piezoelectric layer between said lower electrode and said upper electrode, said piezoelectric layer comprising a multi-layer assembly;~~
~~an acoustic mirror between said carrier substrate and said lower electrode, said acoustic mirror comprising at least one layer with a high acoustic impedance and at least one layer with low acoustic impedance arranged in a stack, said at least one layer of low acoustic impedance including an uppermost mirror layer of said stack, said uppermost mirror layer exhibiting a varying thickness, an upper boundary surface of said uppermost mirror layer being planar to said lower electrode, and said uppermost layer enclosing structures of said structured layer and forming a seal with a layer of said at least one layer with a low acoustic impedance or with said carrier substrate outside of an area covered by said structure;~~
~~an additional piezoelectric layer being formed on said upper electrode and an additional electrode on said additional piezoelectric layer;~~
at least a partially permeable coupling layer ~~being provided between said the upper electrode and said the at least one additional piezoelectric layer;~~ and
a second additional electrode ~~is arranged between said at least a partially permeable the coupling layer and said the at least one additional piezoelectric layer.~~

7. (Currently Amended) A ~~component according to claim 1, wherein the operating with bulk acoustic waves, said component comprising :~~

a carrier substrate;
a lower electrode that faces said carrier substrate;
an upper electrode;
a piezoelectric layer between said lower electrode and said upper electrode, said piezoelectric layer comprising a multi-layer assembly; and
an acoustic mirror between said carrier substrate and said lower electrode, said acoustic mirror comprising at least one layer with a high acoustic impedance and at least one layer with low acoustic impedance arranged in a stack, said at least one layer of low acoustic impedance including an uppermost mirror layer of said stack, said uppermost mirror layer exhibiting a varying thickness, an upper boundary surface of said uppermost mirror layer being planar to said lower electrode, and said uppermost layer enclosing structures of said structured layer and forming a seal with a layer of said at least one layer with a low acoustic impedance or with said carrier substrate outside of an area covered by said structure
said carrier substrate including comprises a plurality of dielectric layers with at least one metallized plane being provided between successive ones of said dielectric layers.

8. (Currently Amended) A component according to claim 1, wherein at least one of said upper electrode and said lower electrode ~~the electrodes~~ is formed by a plurality of layers.

9. (Currently Amended) A component according to claim 1, wherein said at least one ~~the mirror~~ layer with high acoustic impedance is of a metal selected from a group consisting of tungsten and molybdenum, and said at least one ~~the mirror~~ layer with a low acoustic impedance is formed of silicon oxide.

10. (Currently Amended) A method to produce a component operating with bulk acoustic waves, said method comprising the steps of:
providing a carrier substrate;
forming an acoustic mirror on the carrier substrate by depositing a layer with a high acoustic impedance on the carrier substrate[[,]] ;

structuring the layer of high acoustic impedance to form a structured layer[[],];
depositing an uppermost mirror layer with a low acoustic impedance on the structured layer;
thinning and planarizing an the upper surface of the uppermost mirror layer to form a planar
surface;
forming a lower electrode on the planar surface;
forming a structured piezoelectric layer on the lower electrode; and
then forming an upper electrode on the structured piezoelectric layer.

11. (Currently Amended) A method according to claim 10, wherein the step of
thinning the uppermost mirror layer occurs by ~~means of~~ chemical mechanical polishing.

12. (Currently Amended) A method according to claim 10, which includes, prior to
depositing the uppermost mirror layer,
depositing an additional layer of low acoustic impedance on the structured layer,
depositing a second layer of high acoustic impedance on the additional layer, and
structuring the second layer to form a second structured layer so that the uppermost layer is
applied on the second structured layer.

13. (Currently Amended) A method according to claim 12, wherein the step of
thinning the uppermost layer occurs by ~~means of~~ chemical mechanical polishing.

14.(Original) A method according to claim 10, which includes, subsequent to
depositing the upper electrode on the piezoelectric layer,
depositing a coupling layer,
then forming a lower electrode of a second resonator followed by a second piezoelectric layer
and a second upper electrode on the coupling layer.

15.(New) A component according to claim 6, wherein said at least one layer with a
high acoustic impedance includes a plurality of layers which are structured.

16. (New) A component according to claim 15, wherein said at least one layer with high acoustic impedance is formed of a material selected from a group consisting of tungsten and molybdenum, and said at least one layer with low impedance is formed of silicon oxide.

17. (New) A component according to claim 6, wherein at least one of said upper electrode and said lower electrode is formed by a plurality of layers.

18. (New) A component according to claim 6, wherein said at least one layer with high acoustic impedance is of a metal selected from a group consisting of tungsten and molybdenum, and said at least one layer with a low acoustic impedance is formed of silicon oxide.

19. (New) A component according to claim 7, wherein said at least one layer with a high acoustic impedance includes a plurality of layers which are structured.

20. (New) A component according to claim 19, wherein said at least one layer with high acoustic impedance is formed of a material selected from a group consisting of tungsten and molybdenum, and said at least one layer with low impedance is formed of silicon oxide.

21. (New) A component according to claim 7, wherein at least one of said upper electrode and said lower electrode is formed by a plurality of layers.

22. (New) A component according to claim 7, wherein said at least one layer with high acoustic impedance is of a metal selected from a group consisting of tungsten and molybdenum, and said at least one layer with a low acoustic impedance is formed of silicon oxide.